GENERAL NOTES

HOY'S SHREW IN LABRADOR

In a collection of mammals made some twenty years ago by Mr. Jewell D. Sornborger, and later acquired by the Museum of Comparative Zoölogy, Cambridge, is a single specimen (M. C. Z. 13444) of Hoy's shrew (*Microsorex hoyi*), a species not hitherto recorded from Labrador. It was captured in 1898 at the Moravian mission settlement of Hopedale on the northeast coast, and so considerably extends the known range of this boreal species. A careful comparison of the skin with other specimens from Quebec and Alberta does not reveal any notable differences in color or proportions. I am indebted to the Museum authorites for the opportunity of publishing this interesting record.

—*Glover M. Allen.*

A BAT NEW TO THE JAPANESE FAUNA

On his last expedition to the East in search of new or interesting woody plants for the Arnold Arboretum, Mr. Edward H. Wilson captured a small bat on the island of Yaku (Yakushima) which lies some ninety miles south of Kagoshima on Kiushu, the southernmost of the large Japanese islands. This specimen in alcohol, Mr. Wilson has kindly presented to the Museum of Comparative Zoölogy, to the authorities of which I am indebted for permission to record it here. It proves to be a species of *Murina*, apparently identical with *M. ussuriensis* lately described by Ognew (Annuaire Mus. Zool. de l'Acad. Imp. Sci. St. Pétersbourg, 1913, vol. 18, p. 402, pl. 12). This author bases his description on two specimens from Ussuri-land, eastern Siberia, the first a female captured April 23, 1910, at Dorf Ewseeivka, Kreis Imansky; the second captured August 13, 1913, at Odarka, Chanka Lake. Mr. Wilson's specimen is therefore the third to be recorded, and extends the known range of the species some fifteen degrees of latitude southward. It was captured in February and may therefore have been a migrant from the inhospitable winter climate of Ussuri and northern Manchuria to the warmer islands of southern Japan. The following measurements indicate close agreement in size, nos. 1 and 2 being respectively the first and second of Ognew's specimens, no. 3 the one here recorded:

	1	2	3
Total length (about)	68.5	73.2	72
Forearm	31.2	32	32.6
Tibia	15.8	16.4	16.5
Greatest length of cranium	16	15.7	16.7

Hitherto *Murina hilgendorfi* Peters was the only species of the genus known from Japan (see Aoki, B., "A hand-list of Japanese and Formosan mammals," Annot. Zool. Japon., 1913, vol. 8, p. 287). It is a considerably larger species (forearm 43 mm.) but with much the same general proportions. Its skull, however, has a low sagittal crest while that of *M. ussuriensis* is smooth.

—*Glover M. Allen.*

FOOD OF THE RED FOX

On January 21, 1920, I was following a large fox track through the woods, where the animal had been hunting in leisurely fashion. On coming to a high stone wall he had leaped up on it, and there dropped dung. The four pellets were rather small, soft, smooth and of a dull green color, but there was no sign of fruit or hair on the outside. I sent the mass to the Biological Survey for examination, and received the following report: "The pellets were composed of about 90 per cent. mouse fur, mainly of *Microtus pennsylvanicus*. There were a few bones of the mice, one small feather of a bird, probably a chicken, and some skins and seeds of apples. The green color over the outside and to some extent throughout the felted mass is undoubtedly from the stomach contents of the *Microtus*, which would be mainly grass. I should think from the amount of fur, that 10 or a dozen mice were represented in this lot." (Bailey). As there was about two feet of snow on the level one wonders how he got at the mice.

—*Ernest Thompson Seton.*

Greenwich, Conn.

ACROBATIC SKUNKS

Arthur H. Howell's note on *The Spotted Skunk as an Acrobat* prompts me to write that this performance of standing on the front feet with hind feet up in the air is one that I have seen many times in the big northern skunk (*Mephitis putida*). Among several hundred skunks I found many that never did it, one or two that did it occasionally, and one that did it so much that his name with all the children was 'Johnny-Jump-Up.' It was usually done in a sort of playful threatening. He would stamp with his feet, run forward two or three paces, give a hard stamp with his front feet, and throw his hind quarters straight up in the air, with tail hanging forward and down or to one side. He always seemed to be in a rollicking good humor when he did it. I tried several times to photograph him in the act, but failed.

—*Ernest Thompson Seton.*

BOBCATS AND WILD TURKEYS

During a visit to northeastern Arkansas in the first week of February, 1920, I was told by several hunters that the high prices commanded by furs were stimulating the trappers to such an extent that bobcats (*Lynx rufus*) were getting scarce, and the immediate result of that was a marked and steady increase of wild turkeys.

—*Ernest Thompson Seton.*

THE WOOD RAT AS A HARVESTER

In December, 1916, while engaged in securing data for a report on some mineral lands near Magdalena, New Mexico, a small mining town 20 miles west of Socorro, I was surprised at the large shipments of pine nuts that were being sent to market from that station. A few miles west of Magdalena there is a considerable growth of piñon pines that might furnish a large harvest of nuts, but knowing the natural

distaste on the part of the Mexican inhabitants for manual labor between meals, I was puzzled to account for the wagon loads that they were daily bringing to market.

I was told that eight car loads had been sent to the eastern dealers, at that date, and as many more were expected before the end of the season.

Upon inquiring of the Mexicans, as well as the American merchants, I learned that the nuts were all secured from the store houses of the wood rat. Armed with an iron hook, about three feet in length, for removing the top of the nest, the Mexican nut hunter seeks the cactus thickets in the neighborhood of the pines. The nests and storehouses of the wood rat are usually placed in the shelter of the chollo cactus, if any are about, and thus protected are comparatively safe. The dome-shaped collection of sticks, dead cactus, and in fact everything movable within a hundred feet of the nest, is the retaining wall of a store of nuts, of from a quart to five gallons; the man securing in a few moments what he might pick up from the ground, under the pines, in a day's work. I was told that this store would be renewed within a week and the same rat pay rent, perhaps as many as five or six times during the fall and winter.

I think that the storehouses are always separate from the nests, and at times are at quite a distance from nests that are occupied. As I was unable to take any specimens, owing to the short time I was in this section, I am unable to say with certainty just what species of wood rat is found in the locality.

—*A. W. Anthony.*

MICROTUS TOWNSENDI IN THE CASCADE MOUNTAINS OF OREGON

All the records for the Townsend vole seem to be from the lower river valleys of western Oregon and Washington, and, indeed, the species has seldom been recorded except from localities situated on or close to tidewater. During July, 1919, I secured a series of fifteen specimens at Prospect, Rogue River Valley, Oregon, that are referable to this race, as well as a number of *Microtus mordax*, and one individual that seems to be *Microtus richardsoni arvicoloides;* but the skull of the latter has disappeared and I cannot be certain.

The middle reaches of the Rogue River flow through a dry country with summer temperatures that may reach 110 degrees, and I feel satisfied that this arid territory is an effective barrier to the continuous distribution of most of the forms that are characteristic of the humid coast belt. Prospect is at an elevation of about three thousand feet, and there is a fairly strong infusion of Transition elements in the surrounding country, but there is a pronounced change in the flora of the slightly lower country a couple of miles to the westward, and I believe that its chief tendency is Boreal. *Vulpes, Evotomys, Eutamias senex* and *Lepus washingtonii klamathensis* are a few of the forms that occur here, and in the small patch of alsike clover that was swarming with the *Microtus*, I took such Canadian species as *Zapus pacificus* and *Neosorex bendirei*. Taking all these points into consideration, it seems likely that the range of *Microtus townsendi* is interrupted between the coast and the mountains. Although there are no high mountains in the immediate vicinity of Prospect, the region rises in a remarkably even slope to the lofty peaks of the Cascades, and this vole may be expected to occur in areas that are subject to similar climatic influences on the western slopes of the Cascades, north as far as the Columbia River gap.

Specimens of *Microtus townsendi* from Prospect differ from coast examples kindly loaned me by the Bureau of Biological Survey, and assumed to be typical, in having the feet and tail darker, and in being of a grayish rather than brownish shade, while the coloration is darker mid-dorsally. The foramen magnum is smaller with less pronounced superior notch, the interparietal is smaller transversely, the molariform teeth project more beyond the alveoli at all ages, the median spread of the nasals is less abrupt, and the antero-superior portion of the zygomatic root of the maxilla is less angular. The material at my disposal indicates that the Prospect animals may be smaller than typical. These differences are mentioned as being of interest when considered in relation to the distribution of the species, but are not deemed sufficiently pronounced to merit subspecific recognition.

—*A. Brazier Howell.*

Berkeley, California.

DEPRESSIONS FOUND ON MOOSE TRAILS AND THEIR SIGNIFICANCE

During the summers of ten years the writer has travelled extensively in the remote parts of northern Ontario and Quebec where moose are plentiful. In 1919, he had the opportunity of observing moose in a district where the lowlands between the rock hills were of sand, silt, and clay instead of the moss bogs or

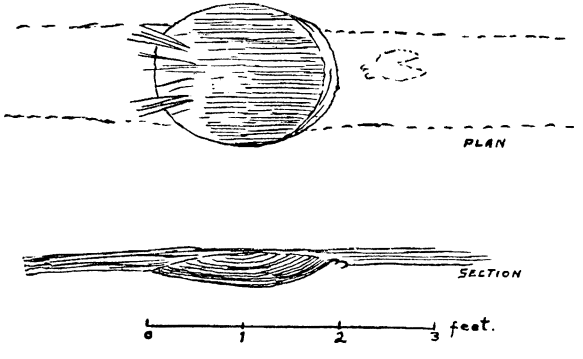

FIG. 1.

muskeg which are so common. Through the forests in this section, the moose trails were more distinct than in the muskeg, and in the moist silt and clay the tracks were sharply defined. During the months of May, June, July, August, and the early part of September nothing unusual was noted along these trails.

On the night of September 21, 1919, while sleeping in a prospector's cabin, the writer was awakened by a moose-call. The sound seemed to come from a point

near the creek about 200 feet away. Noises made by twigs breaking, bushes rustling and a variety of grunting noises continued to come from that locality for about half an hour. Then two moose were heard to walk close by the cabin and away toward the north. Next morning, upon going to the creek, a moose trail was followed to the place from which the noises of the night had come, and in the middle of the trail, surrounded by a small area of trampled bushes was a peculiar, freshly-formed, pit. This pit is the feature of special interest described in this statement.

The soil on the trail was of clayey silt softened by the rains of the previous days. The pit was elliptical with diameters of about 2 feet and 18 inches; it was 2 inches deep near the center. Moose tracks were abundant in this vicinity and there were several at one side of the pit which showed that the hoofs had slipped in the mud. The inside of the pit was covered with fine parallel striations, and a few moose hairs occurred on its surface. From a study of the pit it was possible to determine that it had not been made by pawing or rolling but that it had been made by the *body* of the moose sliding in the mud.

Subsequently, the main moose trail which led north from this point was followed; and at a distance of 10 chains a similar pit was found. The next day two other pits of similar character were observed on moose trails, one being in sand and not distinctly marked as were those in clay.

A local hunter was shown some of these pits and asked what they meant. He supposed that they indicated the site of a combat between bull moose. He stated that he had never observed them at any other time of the year than the late fall. He had not previously noted the striated surface of the pits nor the lack of a second one which would presumably be formed if two animals opposed their horns and pushed.

The writer advances the suggestion that these depressions are formed by moose during copulation. Such a structure would be the obvious result if the animals follow the procedure of cats, the female lying down.

—*T. L. Tanton.*

Ottawa, Canada.

BREEDING OF THE BRAZILIAN TAPIR

The following breeding record of a pair of Brazilian tapirs (*Tapirus terrestris*) in the collection of the National Zoological Park covers a period of 16 years. The male was obtained at Manaos, Brazil, in the spring of 1899, by Commander C. C. Todd, U. S. N., while in command of the U. S. Gunboat Wilmington during her voyage up the Amazon. The female, which was bred and reared in the botanical gardens at Demerara, arrived at the Park in August, 1901. The male was about one year old, and the female probably between 3 and 5 years, when received.

The first birth from the pair occurred May 15, 1903, and the young came rather regularly thereafter, the record being as follows:

May 15, 1903; male;	period of gestation, uncertain			
November 7, 1904; female;	"	"	"	"
June 27, 1906; male;	"	"	"	405 days
October 13, 1907; male;	"	"	"	395 "
February 28, 1909; male;	"	"	"	401 "
July 11, 1911; female;	"	"	"	392 "
May 23, 1913; male;	"	"	"	403 "
August 4, 1915; male;	"	"	"	396 "
February 22, 1918; female;	"	"	"	404 "

While there is, in two or three cases, a little uncertainty as to the exact time of breeding, 400 days may safely be taken as the average period of gestation. For the single birth from another pair the period was 401 days.

The death of the male, September 17, 1917, closed the record, though it is probable that the female would have bred further, as she is still in vigorous health.

Two of the young tapirs died, one from enteritis and the other as result of an accident. The rest, when from 9 months to 2 years old, were disposed of in exchange for other animals.

—*A. B. Baker.*

THE FUR SITUATION

The largest sale of furs which ever occurred took place in St. Louis during the first half of February, 1920. In the course of 12 days peltries to the value of $27,000,000 were disposed of. A week or two later a similar auction sale of somewhat less extent occurred in New York. Next May a third auction sale of furs will be held in Montreal. Thus it appears that we have in North America three distinct corporations handling furs extensively.

The center of the world's fur trade is now beyond question located in America. Only a few years ago London was the main fur center of the world. Leipzig and Moscow were its satellites. Prior to 1914 the bulk of American raw furs were transported across the Atlantic, sold, dressed, dyed, and resold in London and other European centers. Many of them were finally brought back to this country to be worn out. Now all this is changed. The raw furs produced in America and many brought from other parts of the world are sold at American auctions to American dealers, and dressed, dyed and manufactured in American establishments for American and foreign trade.

While St. Louis is the greatest sales center, New York City is the center of fur dressing, dyeing and manufacturing. In greater New York there are approximately 18,000 people engaged in the various branches of the fur industry. About 500 of these are dealers. The capital invested there has been estimated to be about $200,000,000. The number of dressing and dyeing establishments in New York in 1918 was about 60. They handled in that year a total of more than 39,000,000 skins.

A National conference on the fur industry and wild life protection in Canada was held at the Windsor Hotel, Montreal, February 19 and 20, 1920, under the auspices of the Commission of Conservation and the Advisory Board on Wild Life Protection. The program consisted of papers and addresses followed by discussion on the following subjects:

The Fur Industry Convention and what it may accomplish.
Our fur bearing animals: their economic significance and future.
Problems of fur production, including the care and management of foxes, nutritional problems, parasites, diseases, fox raising as a commercial proposition, raising and feeding foxes, and fur farming in Quebec.
Registration of silver foxes.
Rearing fur bearers other than silver foxes.
Fur statistics relating especially to the annual fur output of the Province of Quebec.
Marketing furs, including improvements of methods of marketing, trade names of furs, and a Canadian auction fur sale.
Game laws and administration, including the sale of game, game protective associations, and a discussion of game laws from the standpoint of the legislator, the trader, the trapper, the fur dealer, and the fur manufacturer.

While this meeting was attended mainly by Canadians a number of Americans were present also. The papers and subsequent discussion disclosed the fact that Canadians evidently feel that the fur resources of their country are of prime importance. The annual returns from furs outweigh those from game.

—N. Dearborn.

A SUPPLEMENTARY NOTE ON CLEANING SKULLS

Experience at the Museum of Vertebrate Zoology indicates that after placing fresh skulls in a seventy per cent solution of alcohol it is better not to take them out again until one is ready to clean them. Be sure that the alcohol used has not been denatured with formalin, or the skulls will be very much harder to clean. Instead of cooking the skulls in an open pan, try cooking them in a covered, double boiler for a considerably longer period.

—A. Brazier Howell.